

2005 Offshore Hurricane Readiness and Recovery Conference

July 26-27, 2005

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Gulf of Mexico Region

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Topics

- The setting - GOM as an asset
- Why are we here - effects of hurricanes
- What is MMS doing
- Challenges - do we need to do more

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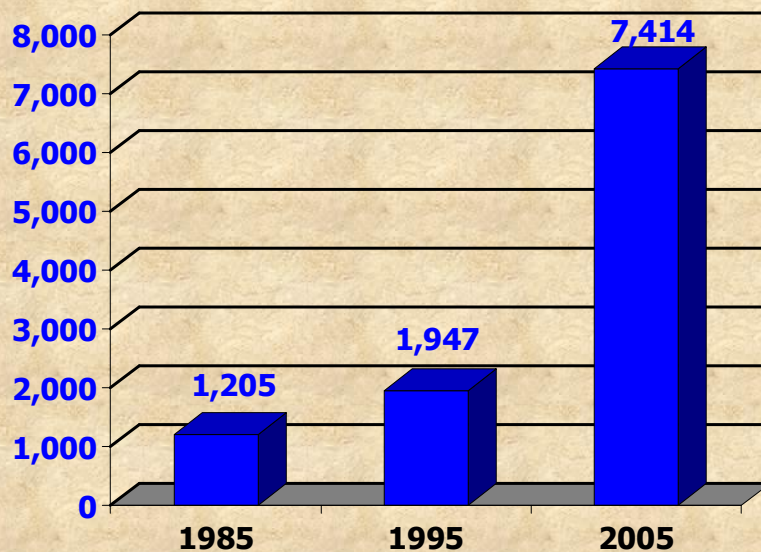


The Setting - Gulf of Mexico as an Asset

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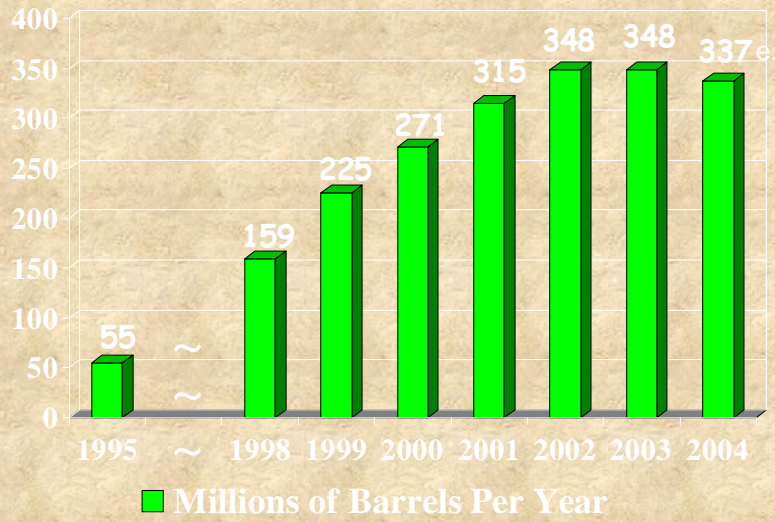
Leases in the Gulf 20 Years



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Gulf of Mexico Deep Water Oil Production

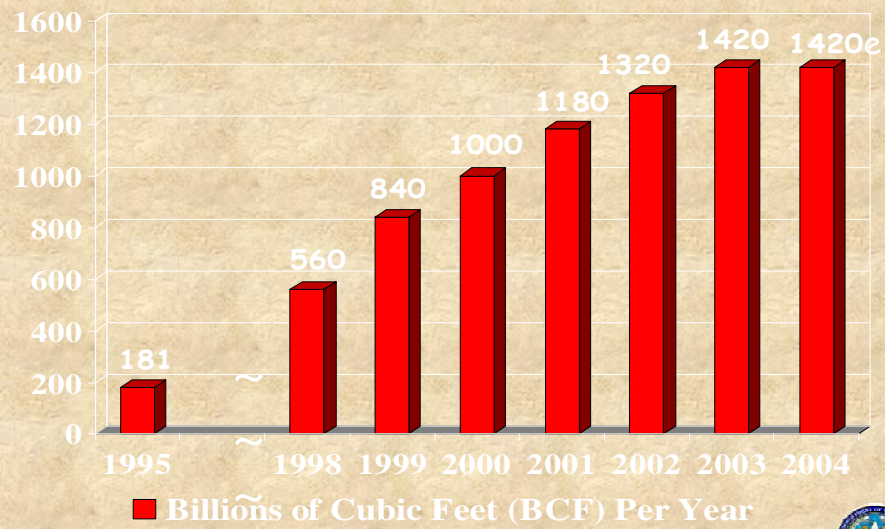


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As of 5/6/05



Gulf of Mexico Deep Water Gas Production

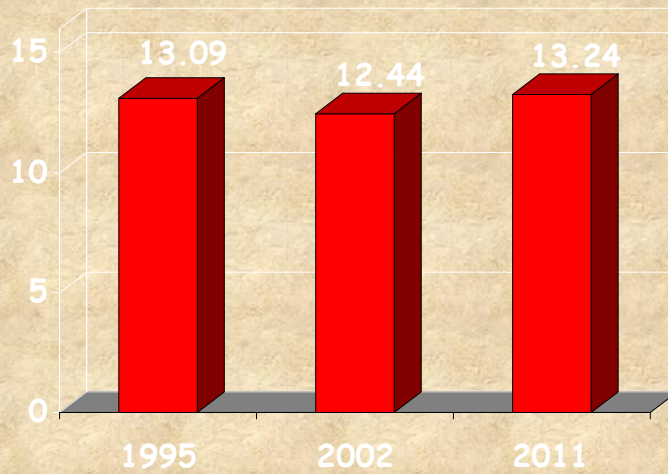


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As of 5/6/05



Future of the Gulf Total Gas Production

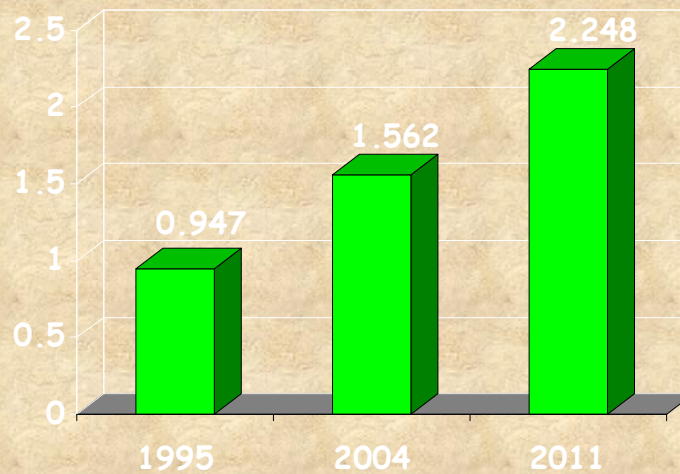


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BCF/day MMS report 2004-065



Future of the Gulf Oil Production is Exploding Total Oil Production

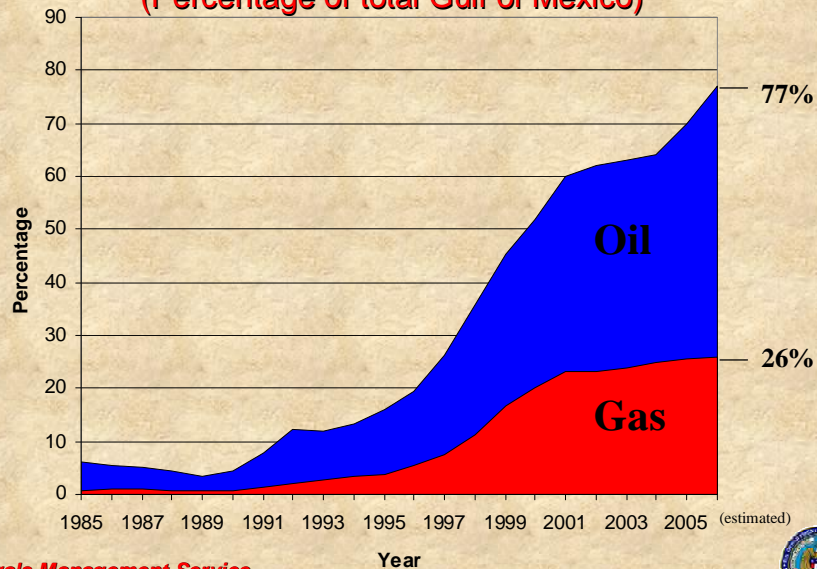


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Millions of Barrels of Oil Per Day



GOM OCS Deepwater Production (Percentage of total Gulf of Mexico)



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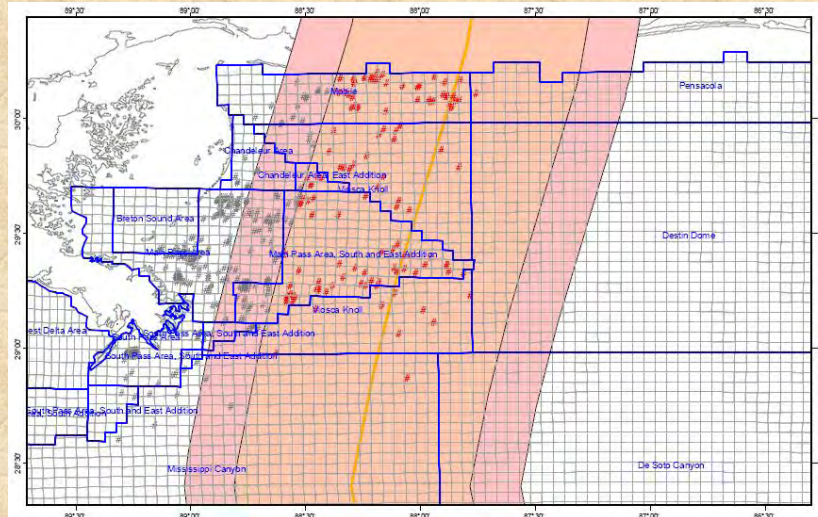


WHY ARE WE HERE?

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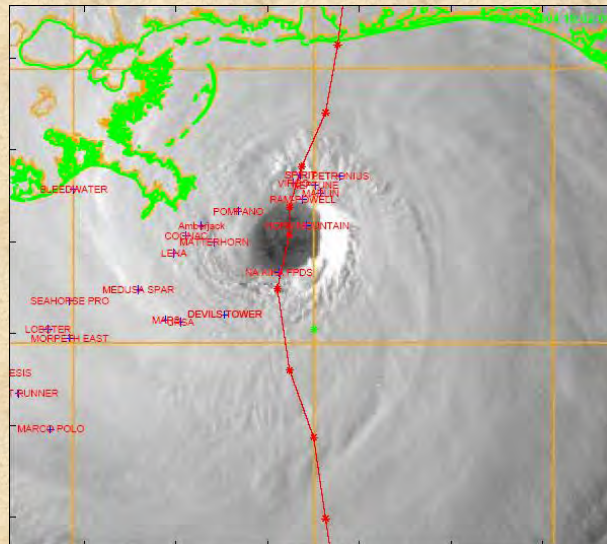
Path of Effects



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Ivan and Deepwater Facilities



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Damage from Hurricane Ivan

- Mobile Offshore Drilling Units
 - 5 adrift
- Platforms
 - 7 fixed platforms were destroyed
 - 31 platforms with serious damage
- Platform rigs
 - 1 leaning platform rig from Spar
 - 1 missing platform rig from Spar

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Reported Pipeline Damage

Reported Pipeline Damage Due to Natural Hazard				
Storm	No. of Reported Pipelines Damaged	Pipelines 16" or Greater in Diameter	No. of Pipelines w/Damage Caused by Mudslides	No. of pipelines w/Damage Caused by Mooring Drag
Hurricane Andrew	448	12	11	0
Hurricane Claudette	2	0	0	0
Tropical Storm Bill	1	0	0	0
Tropical Storm Isidore	2	1	1	0
Hurricane Lili	112	4	1	0
Hurricane Ivan	102	12	17	1

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Before Hurricane Lili

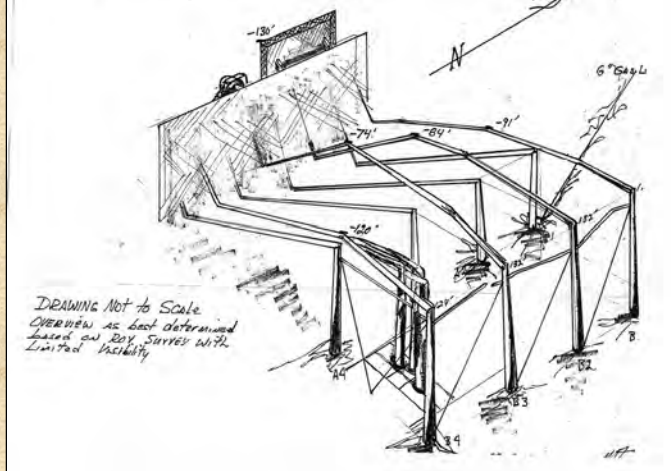


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After Hurricane Lili

Interpretation based on ROV survey



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After Hurricane Lili



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Before Hurricane Lili



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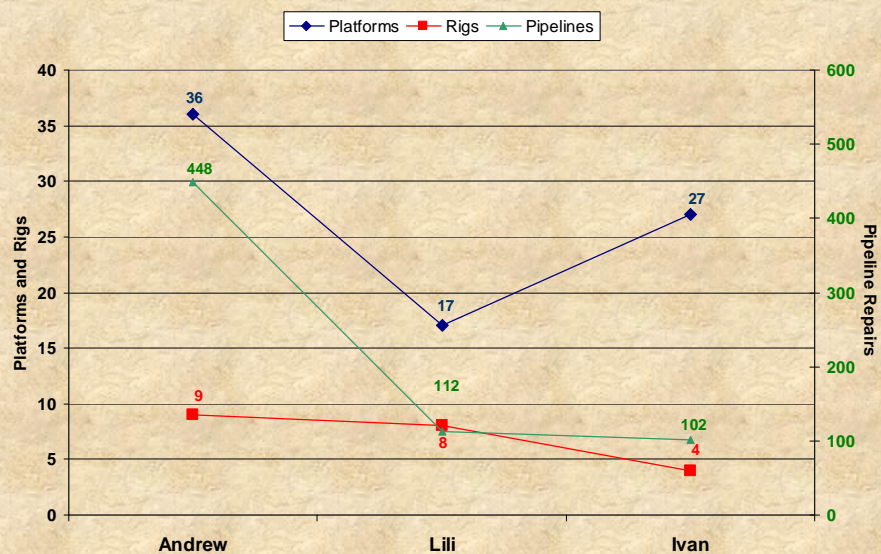
After Hurricane Lili



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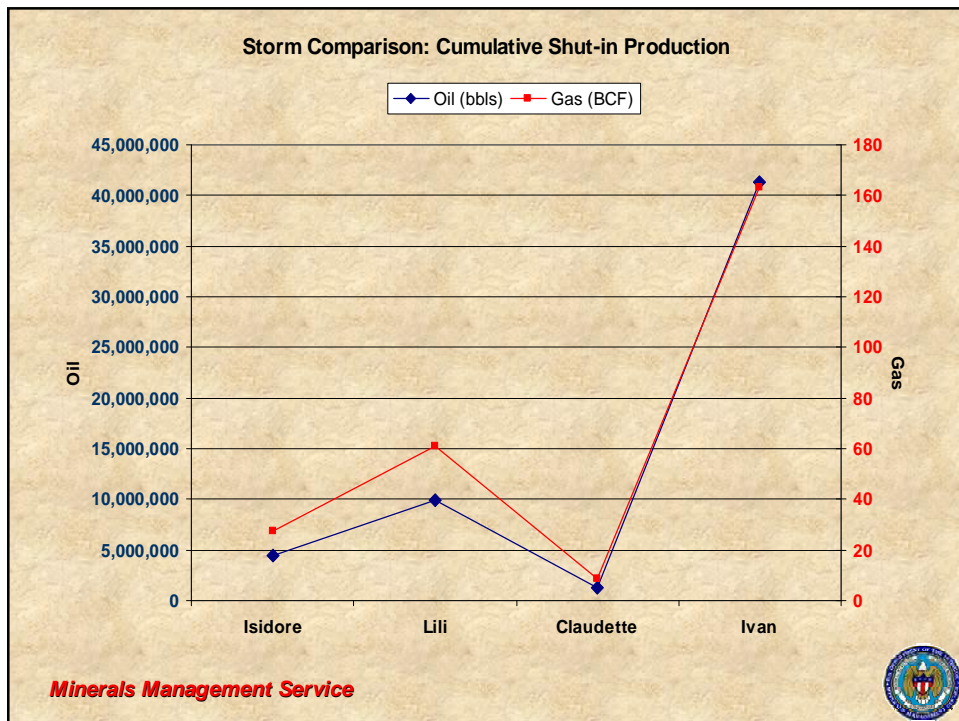
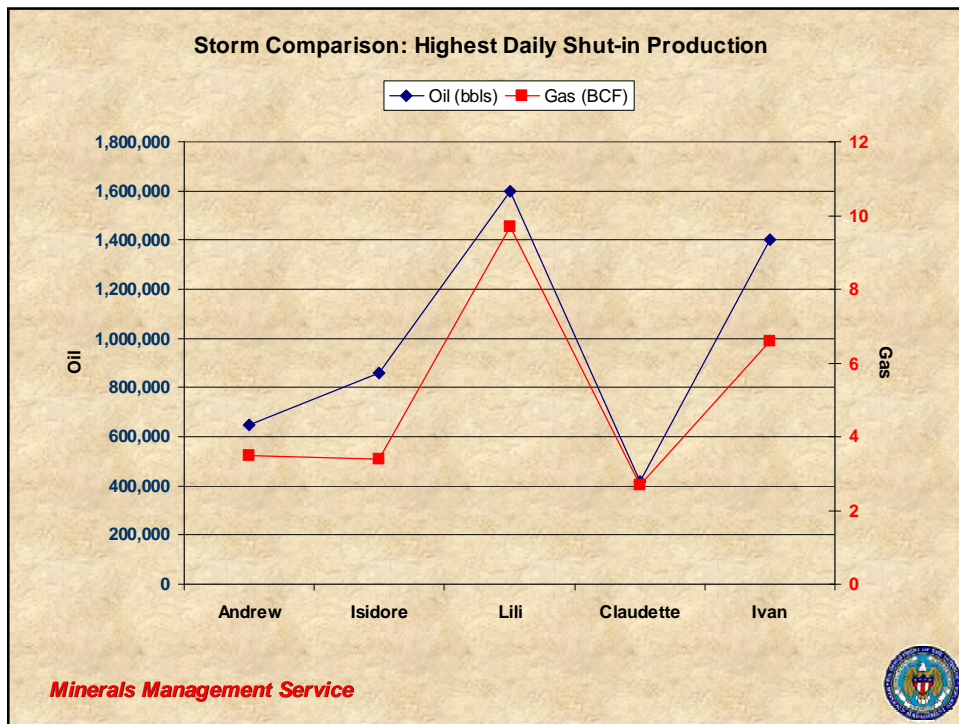


Storm Comparison: Serious Damage



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WHAT IS MMS DOING?

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MMS Studies

- Awarded 6 contracts totaling over \$600,000
- Studies will examine the impact of Hurricane Ivan on the Gulf of Mexico oil and gas infrastructure
- Will be used in assessing the adequacy of current design standards and regulations

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NTL No. 2005-G06

- Hurricane and Tropical Storm Evacuation and Production Curtailment Statistics NTL effective May 26, 2005
- Requires operators to submit statistics regarding evacuation of personnel and curtailment of production because of hurricanes, tropical storms, or other natural disasters
- Submittal of MMS Form MMS-132

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[illegible]

MMS Form 132

- Submitted daily by operators who have any shut-in production or evacuation of any facility or rig
- Form is either emailed or faxed
- Required to be submitted by 11 a.m.

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Previous Studies

- MMS is reviewing study results on Hurricane Lili – Stress Engineering report on pipelines
- MMS is reviewing previous studies on Hurricane Andrew

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Challenges for Industry and MMS – Do We Need to Do More??

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Platforms

➤ WHAT CAN WE DO TO MINIMIZE DAMAGE?

- Is API RP 2A 21st Edition adequate?
- Is the 100 year storm criteria sufficient?
- Should we install platforms in mudslide areas?
- How do we make platform rigs more secure?
- Should MODU's be removed from the vicinity of high volume facilities prior to a storm event?
- How do you secure your facilities in environmentally sensitive areas?
- Are synthetic mooring systems used on floating facilities adequate?

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MODU's

➤ RIGS ADRIFT ARE NOT ACCEPTABLE!

- Is the API RP 2SK Mooring Designs standard adequate?
- What are the assumptions used in performing risk analysis for mooring near infrastructure? Are they sufficient??
- Are the current standards for anchors and synthetic mooring systems adequate?
- Are the current storm preparation and evacuation procedures adequate? Are operators allowing enough time to properly secure and prepare?
- Are the recommended inspection schedules for mooring systems adequate?

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Pipelines

- Are the current design standards adequate?
- Are the storm preparation procedures adequate?
- Should we lay pipelines in mudslide areas?
- Should pipelines be laid only perpendicular to mudslide areas?
- Do we need redundancy built into the major pipeline systems?
- Should lines be hydro-tested tested prior to returning pipelines to service?
- Should all pipelines be buried?

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Future Efforts

- Continue working closely with industry and other federal agencies
- Continue to assess the effectiveness of current design standards and regulations
- MMS expects to act before and after studies completed

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Big Picture – New Reality

- Rising production
- More infrastructure exposure
- Country's growing dependence on Gulf of Mexico
- Gulf of Mexico is one driver of the markets – press scrutiny is intense

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2005 HURRICANE SEASON (To Date)

